# Air Force
# SBIRAdvantage

Offering a brief look at the vital research and development contributions made by the Small Business Innovation Research (SBIR) Program in direct support of the Air Force mission.

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## Air Force SBIR Update



# SBIR and STTR
## The Similarities and Differences
**by Steve Guilfoos**

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Most of us are very familiar with the various facets of the Small Business Innovation Research (SBIR) program. You may not be as familiar with a sister program called the Small Business Technology Transfer Program (STTR). The STTR program is a pilot program, mandated in Public law 102-564, that awards R&D contracts to small businesses for cooperative research and development conducted jointly by a small business and a research institution. STTR, although modeled substantially on the SBIR program is a separate program and is separately funded. These programs authorized separately by Congress have many similarities, but also many specific differences.

### Similarities

Both programs are intended for small businesses to conduct research on behalf of the federal sponsoring agencies. Both have the two phase contract awards. Both have a formal solicitation held jointly with other DOD components. Both have similar proposal evaluation processes and criteria. Both have the ultimate goal of providing technologies for commercialization to the military and civilian sectors.

### Differences

Some of the differences include the amount of award for a STTR Phase II. It is capped at $500,000 as compared to $750,000 for SBIR. The SBIR solicitation is in the fall of each year, while STTR is in the spring. The SBIR budget is set at 2.5% of the Air Force's extramural research and development budget while STTR is at .15%.

One major difference is the requirement for a STTR to be partnered with a research institution. At least 40% and not more than 60% of the work must be performed

## SBIR Tech Issues

*Tech Issues* is intended for personnel directly involved in the operation and support of the AF SBIR program.

# SBIR Topic Suggestion Module

In a 2 Feb 1999 letter to Congress, Dr. Jacques Gansler, Under Secretary of Defense for Acquisition and Technology, agreed to facilitate the transition into DOD acquisition programs of technology developed under the SBIR program.

### Improved Process to Better Answer Tech Needs

The Air Force SBIR Program Management Team subsequently initiated an enhancement to its topic generation process that will more closely tie SBIR topics to PEO/DAC technology needs.

The Air Force SBIR Program developed a topic suggestion module that:

1. Provides an on-line capability for PEO/DAC topic sponsors to enter their topics,

2. Provides visibility to all topics under generation thereby reducing duplication of topics,

3. Permits on-line editing by both the sponsor POC and the AFRL technical POC, and

4. Provides for a direct transfer of information into the SBIR active topic database.

### Password Protected

This module is password protected and only the authorized PEO/DAC topic sponsor and AFRL technical POC can edit their own topic files. However, all Air Force members have read access and can add comments to these files on a "dot mil" server. The module generates an automatic e-mail to the POCs whenever someone has edited the topic file. The module provides capability to register the topic status as "in-process" until both POCs agree that the topic authoring is completed.

### Saves Time– Avoids Duplication

This module is aimed at significantly reducing the time and effort required in generating PEO/DAC topics as well as reducing the possibility of duplicate topics. But mostly, this module will help both the sponsor and technical POCs work together to generate high quality topics. In turn these high quality topics will provide the technologies that are ready for transition by the PEO/DACs.

# SBIR Facts & Figures

### SBIR FY00 Budget/Award Update
(As of 25 September 2000)

| Location | Budget | (00 Sol) # of Topics | 2000 Ph. I Proposals Recd. | SY 2000 Ph. I Awards | SY 1999 Ph. I Awards |
|---|---|---|---|---|---|
| AFRL/DE | $14,486,000 | 21 | 170 | 31 | 16 |
| AFRL/VS | $29,136,000 | 40 | 378 | 58 | 28 |
| AFRL/HE | $16,010,000 | 24 | 216 | 34 | 14 |
| AFRL/IF | $21,140,000 | 28 | 267 | 39 | 22 |
| AFRL/ML | $20,365,000 | 28 | 288 | 42 | 14 |
| AFRL/MN | $13,142,000 | 17 | 154 | 23 | 15 |
| AFRL/PR | $18,707,000 | 36 | 403 | 49 | 18 |
| AFRL/SN | $17,030,000 | 28 | 195 | 40 | 11 |
| AFRL/VA | $9,641,000 | 18 | 173 | 25 | 8 |
| ALCs/TCs | $24,155,000 | 18 | 144 | 30 | 28 |
| **TOTALS** | **$183,812,000** | **258** | **2,385** | **369** | **173** |

## AF SBIR Impact

# Variable Autonomy Control System for UAVs



## Air Force Requirement

The Air Force Research Laboratory was searching for new Unmanned Aerial Vehicle (UAV) control systems technology that greatly simplified the manual control of UAVs and eliminated the requirement for highly trained, rated Air Force pilots to operate the UAV systems. The Air Force was also looking for a solution that significantly reduced the UAV operator workload and training requirements, thus significantly reducing the training and logistics costs associated with the operation of UAVs.

## SBIR Technology

Geneva Aerospace is currently in Phase II of an Air Force Small Business Innovation Research Program (SBIR). In this project, Geneva is developing a system that greatly simplifies the control of Unmanned Aerial Vehicles (UAVs) for remote operators. With this new UAV control technology, unskilled operators with no piloting or aviation experience can fully control an unmanned aerial vehicle.

## Payoff

Geneva developed the underlying control technology that will facilitate the emergence of new UAV systems that are easier to fly than automobiles are to drive. This control simplicity enables a larger community of military operators, beyond the small group of highly trained aviators, to control UAVs, while at the same time allowing a single operator to manage multiple UAVs at one time.

## Technology Transfer/ Commercialization

Geneva has begun commercializing its product, integrating its new UAV Control technology into several Air Force, Army, and Navy research and development programs with the added possibilities for widespread commercial applications.

Geneva Aerospace and their government customers believe that this technology can be the catalyst that drives the use of UAVs for commercial applications such as border patrol, farming applications, search and rescue, pipeline and power-line inspection, motion picture filming, and many more.

## SBIR Partner:

Geneva Aerospace, Inc., Dallas, TX

## Employees:

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"In the future, the use of unmanned air vehicles (UAVs) will expand to new roles beyond reconnaissance and surveillance, into real-time targeting and even weapon delivery. This technology will make the control of UAVs flexible and responsive in real-time, without requiring expensive and scarce piloting skills, meeting the needs of the warfighters."

Andrew Probert
SBIR Project Officer
AFRL/VAAI

## Air Force SBIR Update

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# SBIR and STTR—The Similarities and Differences

| Item | SBIR | STTR |
|------|------|------|
| Funding | 2.5% | 0.15% |
| Budget | $185M in FY 2000 | $11M in FY 2000 |
| Solicitation | Closes early January | Closes early April |
| Phase I | 9 months, $100,000 | 9 months, $100,000 |
| Phase II | 24 months, $750,000 | 24 months, $500,000 |
| Outside partners | Not required but allowed | Required, 40 to 60% with research institution |
| Research focus | Exploratory and Advanced Development (Program Elements 6.2 and 6.3) | Basic research (Program Element 6.1) |

by a research institution who has partnered with the small business. This allows for the federal agencies to plus upon unique research work carried on at our research institutions and universities. Of the 73 Phase II STTRs completed in the last three years, 69 small businesses have partnered with 53 research institutions.

However, the most significant difference is the focus in the maturity of the research. The Air Force uses STTR specifically for "basic research". SBIR focuses on the more mature "exploratory research" and "advanced development". Within the Air Force Research Laboratory, the Air Force Office of Scientific Research (AFOSR) focuses solely on "basic research". "Basic

Research" is defined as pursuit of greater knowledge or understanding of the fundamental aspects of phenomena of observable facts. As such, I have assigned program execution to the AFOSR.

AFOSR manages the Air Force's entire basic research investment. Its technical experts sponsor and direct basic research conducted in the nation's research institutions, U.S. industry, and other government agencies. Using a carefully balanced research portfolio, its research managers create new technology and advance current knowledge, then quickly transition research accomplishments for further development.

### Summary

Because of the program similarities, the Air Force is able to administer the STTR program using the same management processes as SBIR. This helps keep our administrative overhead costs down. Because of the differences, we've chosen to manage the program out of the AFOSR. This allows the Air Force to leverage the strengths of both SBIR and STTR while keeping the distinct research focus for both programs.

I believe that STTR fills a valuable niche in our research portfolio and provides a needed tool for our research planners. The Air Force has benefited greatly from STTR and we will continue to use this program to our best advantage.

## STTR Reauthorization in FY01

Because the STTR program is up for reauthorization in FY 2001, Congress requested the GAO look into the STTR program. In a letter dated 27 July 2000 to the Secretary of Defense, the GAO intends to address (1) What are the advantages or drawbacks of maintaining two separate but similar programs? (2) What are the nature and accomplishments of the partnerships between small businesses and the research institutions that are central to the STTR program? (3) Has there been a change in the number of STTR proposals and, if so, what is its significance?

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